I claim:

1. An overspeed mechanism for exceeding the continuous duty power output of an electric motor in a vehicle, comprising: a) an electric motor with a given continuous duty power rating; b) a power supply for the motor comprising an energy source and power control circuitry for providing electric energy to the motor in excess of the continuous power rating; c) a switch for activating overspeed power to the motor; and d) a temperature detector with associated control circuitry located on at least the motor or power supply component, wherein the switch engages the power supply to supply power in excess of the continuous power rating, the temperature detector continuously monitors temperature and the temperature detector associated control circuitry blocks the provision of power to the motor in excess of the motor's continuous duty power rating upon detection of a high temperature by the temperature detector.

2. An overspeed mechanism as described in claim 1, wherein the electric motor has a continuous power rating of between 3 and 30 horsepower.

3. An overspeed mechanism as described in claim 1, wherein the power control circuitry comprises battery bank switches.

4. An overspeed mechanism as described in claim 1, wherein the power control circuitry comprises capacitive banks that periodically become charged and discharged into the motor, wherein the discharge voltage applied to the motor exceeds the battery voltage.

5. An overspeed mechanism as described in claim 1, further comprising a visual indicator of the status of overspeed capability.

6. An overspeed mechanism as described in claim 5, wherein the visual indicator is selected from the group consisting of a green light indicating that overspeed power is available, a yellow light indicating that some but not maximum overspeed power is available, a red light indicating that no overspeed power is available, a gauge with a

needle that displays the relative amount of overspeed time available, and a digital readout that indicates relative or absolute amount of overspeed time available.

7. An overspeed mechanism as described in claim 1, further comprising an electric fan for cooling the electric motor, thereby the fan is activated upon activation of the overspeed mechanism.

8. An overspeed mechanism as described in claim 1, further comprising a water pump for for transporting water into contact with a surface of the motor upon activation of the overspeed mechanism.

9. A watercraft that comprises an overspeed mechanism as described in claim 1.

10. An land vehicle that comprises an overspeed mechanism as described in claim 1.

11. A kit for adding overspeed capability to a vehicle, comprising an overspeed mechanism as described in claim 1, and one or more fasteners for attaching one or more components of the overspeed mechanism to the vehicle.

12. An electric vehicle power supply usage efficiency monitor, comprising:

a) an electrical signal receiving input that accepts a signal which indicates the relative or absolute state of power supply depletion;

b) at least one circuit or software program implemented in a microprocessor or other hardware that compares the input from a) with a factor that accounts for the cost of the power supply and that outputs a signal corresponding to both rate of power usage and state of power supply depletion; and

c) a signaling device that indicates cost or efficiency of power use to an operator of the vehicle.

13. A monitor as described in claim 12, wherein the power supply is selected from the group consisting of an electric storage battery, a lead acid battery, a metal hydride battery, a nickel cadmium battery, a lithium battery, a hydrogen tank, a graphite hydrogen storage container, a carbon nanotube hydrogen storage container, a metal hydrogen storage container, an alcohol fuel storage container, a wet chemistry reduced compound

in a container, sodium borohydride in a container, and a hydrocarbon storage container.

14. A monitor as described in claim 12, wherein the power supply is a chemical that is used to supply energy for a fuel cell.

15. A monitor as described in claim 12, wherein the microprocessor of b) comprises a look up table of values or an algorithm corresponding to a power supply life use time at the measured power supply depletion.

16. A monitor as described in claim 12, wherein the signaling device is selected from the group consisting of a visual analog meter, a visual bar meter, a visual meter with regions showing relative or absolute projected energy costs, a digital meter, a digital meter showing relative or absolute projected energy costs, and an auditory device.

17 A monitor as described in claim 12, wherein the microprocessor of b) comprises a look up table of values or algorithm corresponding to added energy costs for reversibly depositing a chemical fuel for powering a fuel cell in the storage container.

18. A monitor as described in claim 12, wherein the vehicle is a watercraft.

19. A monitor as described in claim 18, further comprising a control governor circuit that automatically decreases electrical power use to a lower maximum value that conserves the health of the power supply.

20. A power supply status monitor for a fuel cell that alerts an operator of a higher cost condition of operating the fuel cell's power supply comprising:

a) an electrical signal receiving input that accepts a signal that indicates the relative or absolute state of power supply depletion;

b) at least one circuit or software program implemented in a microprocessor or other hardware that compares the input from a) with a range corresponding to the higher cost condition to determine when

the range of higher cost of power supply use has been entered; and

c) a signaling device that indicates cost or efficiency of power use to an operator of the fuel cell.

21. A power supply status monitor for a fuel cell as described in claim 20, wherein the higher cost condition is a low chemical fuel concentration in a storage container that requires energy input to remove the chemical fuel from the storage container.

22. A power supply status monitor for a fuel cell as described in claim 21, wherein the energy input is selected from the group consisting of heating at least part of the storage container, pumping the storage container, washing the storage container with a gas or liquid, vibrating the storage container, and changing the volume or shape of the storage container to extract more of the chemical fuel.

23. A power supply status monitor for a fuel cell as described in claim 20, wherein the signaling device is selected from the group consisting of a bell, a buzzer, a chime, a piezoelectric buzzer, a light, an electrical signal sent to a computer, an electrical signal sent over a telephone line, an analog visual gauge, a digital visual gauge and a flat screen display.

24. A battery health monitor for a vehicle, comprising:

a) a hardware circuit comprising i) signal inputs for a power demand signal and for a state of capacity signal, ii) at least a microprocessor or other circuitry for comparing the signal input with one or more stored values, iii) a temperature transducer that monitors the battery temperature, iv) a reference signal value corresponding to the status of a healthy battery, and v) an electrical output from the hardware circuit to indicate battery health; and

b) a signaling device that receives the electrical output from the hardware circuit to indicate battery health to an operator of the vehicle;

wherein the hardware circuit tests the battery's ability to generate power by 1) asserting

a known load on the battery, 2) measuring the battery output in response to the known load to generate a power demand signal, 3) compensating the power demand signal for power with a temperature signal from the temperature transducer, and 4) compensating the power demand signal with a state of capacity signal indicating the state of battery depletion, and 5) comparing the double compensated signal with a reference signal to generate the output signal indicating battery health.

25. A battery health monitor as described in claim 24, wherein the signaling device is a panel mounted device selected from the group consisting of an analog meter with colored regions, an analog meter with green yellow and red areas to indicate multiple full battery charge cycles remaining, few full battery charge cycles remaining and no full battery charge cycles remaining respectiv, an analog meter with numeric display of relative or absolute number of battery charge cycles remaining, a light to alert when few or no full battery recharge cycles remain, a buzzer to alert when few or no full battery recharge cycles remain, an alert light within a fuel panel gauge to alert when few or no full battery recharge cycles remain, and a panel display.

26. A battery health monitor as described in claim 24, wherein the hardware circuit test of the battery with the known load occurs automatically during a recharge cycle and the result is used to update the output signal.

27. A battery health monitor as described in claim 26, wherein the test occurs at a point determined by a reference voltage and wherein the charging battery voltage exceeds the reference voltage.

28. A battery health monitor as described in claim 24, further comprising a push button switch that asserts the known load on the battery to allow user interrogation of a present battery health status.

29. A battery health monitor as described in claim 24, wherein the reference signal is obtained by asserting the known load on the battery when the battery is first used.

30. A battery health monitor as described in claim 24, wherein the temperature transducer is a thermister that is mechanically and thermally coupled to a battery terminal.

31. A fuel cell health monitor for a vehicle, comprising:

a) a hardware circuit comprising i) signal input for a power demand signal ii) at least a microprocessor or other circuitry for comparing the signal input with one or more stored values, iii) a reference signal value corresponding to the status of a healthy fuel cell, and iiv) an electrical output from the hardware circuit to indicate battery health; and

b) a signaling device that receives the electrical output from the hardware circuit to indicate fuel cell health to an operator of the vehicle;

wherein the hardware circuit tests a fuel cell parameter associated with the fuel cell's ability to generate power by 1) asserting a known load on the fuel cell, 2) measuring the fuel cell output in response to the known load to generate a power demand signal, 3) comparing the measured output in response with a reference signal to generate the output signal indicating fuel cell health.

32. A fuel cell health monitor as described in claim 31, wherein the load is a resistive load and the measured fuel cell output is a current at a known voltage to derive an impedance that is compared with the reference signal.

33. A fuel cell health monitor as described in claim 31, further comprising a fuel cell temperature measurement, wherein the measured fuel cell output in response to the known load is calibrated by the temperature measurement before comparing with a reference signal.

34. A fuel cell health monitor as described in claim 31, wherein the measured fuel cell output response is an impedance of a membrane within the fuel cell.

35. A fuel cell health monitor as described in claim 31, wherein the signaling device is a panel mounted device selected from the group consisting of an alert light to indicate that a membrane or other degradable part of a fuel cell requires replacing, an alert light within a fuel gauge to indicate that a membrane or other degradable part of a fuel cell requires replacing, an analog meter with green yellow and red areas to indicate that a fuel cell membrane or other degradable part of the fuel cell has good marginal or no life remaining respectively, an analog meter with numeric display of time or energy flow remaining before a fuel cell membrane or other degradable part of the fuel cell should be replaced, time or total energy available from the fuel cell before fuel cell maintenance is required; a light to alert when fuel cell maintenance is required; a buzzer to alert when fuel cell maintenance is required, and a panel display.